

CLAIMS:

a3 1. A unit for packaging and dispensing a liquid or semi-liquid product, comprising:
a body forming a reservoir for the product and having a fixed portion surmounting the reservoir;
a pump surmounting the reservoir;
an actuating element mounted for actuating the pump; and
a product outlet element having at least one opening and connected to the pump by a conduit forming a flexible connection, wherein the outlet element is held substantially immovably in position on the fixed portion of the body, and wherein the actuating element is mounted independent of said fixed portion of the body.

9. 2. A packaging and dispensing unit according to claim 1, wherein the outlet element comprises a nozzle for spraying a liquid product.

10 3. A packaging and dispensing unit according to claim 2, wherein the body has a transverse partition separating a first space defining said reservoir from a second space surmounting the first space, said second space containing said pump mounted in said partition, the actuating element mounted on said pump, the outlet element and the conduit forming the flexible connection.

4. A packaging and dispensing unit according to claim 2, wherein the outlet nozzle is disposed substantially immovably at the bottom of a cutout formed in a side wall of the second space, said cutout opening out on a free edge of the second space situated opposite the transverse partition.

a4 5. A packaging and dispensing unit according to claim 1, wherein the outlet element is mounted inside a housing communicating with the conduit forming the flexible connection, wherein the actuating element, the housing and the flexible conduit form a single molded

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8. A packaging and dispensing unit according to claim ¹⁹8, wherein the actuating element has a pressing surface on which an actuating pressure may be exerted.

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7. A packaging and dispensing unit according to claim ¹⁹7, wherein the molded part is formed of one of the group consisting of a low density polyethylene (PEBD), and a mixture of low density polyethylene (PEBD)/high density polyethylene (PEHD) wherein a PEHD content is at most equal to 25% of the mixture.

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8. A packaging and dispensing unit according to claim ⁸7, wherein the conduit forming said flexible connection forms a bellows.

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9. A packaging and dispensing unit according to claim ⁸9, wherein the body is formed of a single piece.

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10. A packaging and dispensing unit according to claim ⁸10, wherein the body is a molded thermoplastic material taken from one of the group consisting of a polypropylene (PP) and polyethylene terephthalate (PET).

11. A packaging and dispensing unit according to claim 1, wherein the pump is offset relative to an axis of the body.

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12. A packaging and dispensing unit according to claim ¹⁰12, wherein said actuating element has an internal duct opening to the conduit forming said flexible connection, wherein the pump includes an intake tube opening inside the first space and a hollow outlet stem, the hollow outlet stem having a flexible end opening in the second space, and the actuating element being mounted on the flexible end, and wherein the outlet stem communicates with said internal duct.

13. A packaging and dispensing unit according to claim 12, wherein the outlet element is situated substantially at the same axial level as said flexible end of the outlet stem.

25 14. A packaging and dispensing unit according to claim 3, wherein the second space has an end opposite said partition, further comprising a protective element closing said end, wherein at least one portion of said protective element is engagable with the actuating element and is formed by a flexible material to permit actuating said actuating element through said protective element.

2 15. A packaging and dispensing unit according to claim 14, further comprising an outer shell covering said unit substantially over its whole height, wherein the protective element has a body in the form of a rigid or semi-rigid annular part, said protective element being held on the end of the second space via said outer shell, further comprising an opening in said outer shell at a location corresponding to the outlet element, wherein the outer shell has a top with a cutout aligned with the actuating element.

3 16. A packaging and dispensing unit according to claim 15, further comprising marking elements on at least one of the outer shell and the body to permit proper angular positioning of the outer shell relative to the body.

26 17. A packaging and dispensing unit according to claim 4, wherein the rigid or semi-rigid annular part of the protective element has a tab portion including a free end bearing on the outlet nozzle so as to fix the latter at a bottom of the cutout in the second space.

5 18. A packaging and dispensing unit according to claim 15, wherein the shell is self-tightening on the body of the unit, at least in a vicinity of an end of the first space opposite the partition.

16 19. A packaging and dispensing unit according to claim 14, wherein the protective element is formed by duplicate injection molding two compatible materials, a first rigid or semi-rigid material forming the annular part, a second flexible material forming the portion engagable with the actuating element.

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²⁰~~20~~. A packaging and dispensing unit according to claim ⁶~~19~~, wherein the first material is one of a polypropylene (PP) and a high density polyethylene (HDPE), and wherein the second material consisting of SEBS.

¹¹~~21~~. A packaging and dispensing unit according to claim ¹⁰~~20~~, wherein the first space has an end opposite to said partition, further comprising an attached bottom sealingly mounted to said end.

22. A packaging and dispensing unit according to claim 21, wherein the attached bottom has an opening for filling the reservoir, further comprising an obturating element for obturating said opening.

27 23. A packaging and dispensing unit according to claim 21, wherein said attached bottom forms at least two axially offset sealing zones.

²⁵~~24~~. A packaging and dispensing unit according to claim ²⁴~~23~~, wherein ^{said}~~said~~ at least two sealing zones comprise a first sealing zone formed by at least one catch engagement bead, and a second sealing zone formed by a self-tightening mounting.

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²⁶~~25~~. A packaging and dispensing unit according to claim ²⁵~~24~~, further comprising a third sealing zone between the first and second sealing zones, said third sealing zone comprising an O-ring disposed at a bottom of a groove in a side wall of the attached bottom.

²⁷~~26~~. A packaging and dispensing unit according to claim ²⁶~~25~~, wherein the O-ring is made of one of butyl and EPDM.

²³~~27~~. A packaging and dispensing unit according to claim 22, wherein the attached bottom is made of a thermoplastic material chosen from one of polypropylenes (PP), polybutylene terephthalates (PBT) and high density polyethylenes (HDPE).

¹⁷~~28~~. A packaging and dispensing unit according to claim ⁸~~27~~, wherein the product is one of a pharmaceutical dermo-pharmaceutical and cosmetic product.

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